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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/055,411	10/29/2001	Zachary C. Hoisignton	7784-000244	7199

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EXAMINER

PIASCIK, SUSAN L

ART UNIT	PAPER NUMBER
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3643

DATE MAILED: 11/22/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/055,411

Applicant(s)

HOISIGNTON ET AL.

Examiner

Susan L Piascik

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 October 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

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SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10/29/01 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Drawings

The drawings are objected to under 37 CFR 1.83(a) because they fail to show elements numbers **53** (controller – page 8) and **60** (horizontal stabilizers – page 9) as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities:

- On page 6, line 12, of the instant specification, the word “planform” should be changed to --platform--.
- On page 12, line 17, of the instant specification, the element number --98-- should be added after the word “nacelles.”
- Please rewrite or clarify lines 18-22, on page 17, of the instant specification.

The sentence is confusing.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1-8, 12-13, 20-22 and 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Henry.

In regards to **claim 1**, Henry teaches an aircraft comprising a fuselage (17) defining a central storage cavity having a length and a height. Also taught is a wing assembly (16) extending through and fixedly coupled to the fuselage (17) in an unswept manner and providing the aircraft with a wingspan. The wing assembly (16) defines a pair of wing storage cavities (28) each of which being located on an opposite side of the fuselage (17). The wing assembly (16) has a moderate aspect ratio which permits the aircraft to be flown efficiently in and out of ground effect. The aircraft comprises an altitude control system (unnumbered) for controlling the altitude of the aircraft when the aircraft is flown in ground effect, wherein the altitude control system (page 2, column 2, lines 8-14) is operable in an active mode for maintaining an altitude of the aircraft at about a predetermined altitude above a surface over which the aircraft is traveling. A plurality of independent and steerable landing gear (19) is coupled to the fuselage (17) and operatively distributing the weight of the aircraft over a predetermined area. The central storage cavity and wing storage cavities are configured to receive a cargo that includes intermodal reusable cargo containers (disclosed as prior art in the applicant's specification). Though, Henry fails to cite a specific value for length, height and width of the fuselage or the length of the wingspan, it would have been obvious to one having ordinary skill in the art at the time of the

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invention to determine these numerical values, since it has been held that discovering the optimum value of a result effective variable involves only routine skill in the art.

Regarding **claims 2 and 3**, Henry discloses the claimed invention except for specifying the length of the wingspan. However, it would have been obvious to one having ordinary skill in the art at the time of the invention to determine these numerical values, since it has been held that discovering the optimum value of a result effective variable involves only routine skill in the art.

In regards to **claim 4**, Henry teaches an aircraft wherein the wing assembly (16) that droops downwardly from the fuselage (17). See Figure 3.

In regards to **claim 5**, Henry teaches an aircraft wherein the wing assembly (16) includes a wing body and a pair of wing tips. The wing body is fixedly coupled to the fuselage and the wing tips are moveably coupled to the opposite ends of the wing body and moveable between an extended position, wherein the wing body and wing tips are positioned in a generally horizontal aligned relation, and a retracted position. See Figure 9.

Regarding **claim 6**, Henry discloses an aircraft wherein the wing tips are hingedly coupled to the wing body. See Figure 9.

In regards to **claim 7**, Henry teaches an aircraft wherein at least a position is configured with an “anti-suck down” shape. See Figure 2.

In regards to **claim 8**, Henry teaches an aircraft wherein the wing assembly is configured with a substantially flat-bottomed airfoil. See Figures 1 and 3.

Regarding **claim 12**, Henry teaches an aircraft wherein the fuselage (17) portion includes an aft fuselage portion that is configured with a limited upsweep to thereby limit flow acceleration. See Figure 3.

In regards to **claim 13**, Henry teaches an aircraft wherein the fuselage (17) includes a necked-down portion that is configured to limit an area of the fuselage that is subject to a suck-down effect. See Figure 2.

Regarding **claim 20**, Henry teaches an aircraft wherein the fuselage includes a pressurized cockpit (unnumbered).

In regards to **claim 21**, Henry teaches an aircraft wherein the plurality of independently steerable landing gear (9) are distributed over substantially the entire length of the central storage cavity.

Regarding **claim 22**, Henry discloses the claimed invention except for specifying the angle through which the landing gear can be steered. However, it would have been obvious to one having ordinary skill in the art at the time of the invention to determine this angle, since it has been held that discovering the optimum value of a result effective variable involves only routine skill in the art.

Regarding **claim 25**, Henry discloses an aircraft wherein the fuselage (17) includes an aft T-tail. See Figure 6.

Regarding **claim 26**, Henry discloses the claimed invention except for specifying the value of the aspect ratio of the wing assemblies. However, it would have been obvious to one

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having ordinary skill in the art at the time of the invention to determine this numerical value, since it has been held that discovering the optimum value of a result effective variable involves only routine skill in the art.

In regards to **claim 27**, Henry teaches an aircraft wherein the wing assembly includes a wingbox structure that extends through the fuselage. The wingbox structure includes a pair of vertical spaced-apart wing panels. The wing panels intersect the central storage cavity and cooperate with as associated pair of floor structures to segregate the central storage cavity into an upper fuselage storage cavity and a lower fuselage storage cavity. See Figures 13 and 14.

Regarding **claim 28**, Henry teaches an aircraft wherein at least one portion of the wingbox structure that is disposed within the central storage cavity does not include a vertical shear web that connects the wing panels.

Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Henry in view of Blum.

In regards to **claim 9**, Henry teaches the claimed invention except for specifying a droop wing dihedral formation. However, Blum teaches a ground effect airplane wherein the wing assembly is configured with a droop wing dihedral wherein a tip portion of each end of the wing assembly effectively limits the aircraft from being lowered to an altitude that is within a suck down altitude. See Figure 3. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the aircraft of Henry, with the wing configuration

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of Blum, in order to provide a wing assembly that ensures the aircraft will be stable in ground effect mode.

Regarding **claim 10**, Henry teaches the claimed invention except for specifying a fuselage nose that is drooped. However, Blum teaches a ground effect airplane wherein the fuselage includes a fuselage nose that is drooped in side view such that the curvature on the underside of the fuselage is limited. See Figure 1. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the aircraft of Henry, with the fuselage configuration of Blum, in order to provide a wing assembly that ensures the aircraft will be stable in ground effect mode.

In regards to **claim 11**, Henry, as modified, teaches an aircraft wherein the fuselage nose tapers more in plan view than in side view so as to limit flow acceleration on the underside of the fuselage nose.

Claims 14-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Henry in view of Gevers.

In regards to **claim 14**, Henry teaches an aircraft further comprising a plurality of wing-mounted drive units. See Figure 19. Henry fails to teach the drive units including propeller clusters. However, Gevers teaches an aircraft having propeller clusters (column 23, lines 39-40). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the propellers of Henry, with the propeller clusters, taught by Giver, in order to prevent the aircraft from “yawing” in one particular direction.

In regards to **claim 15**, Henry, as modified in the previous claim, teaches an aircraft wherein each propeller cluster includes a first propeller that is rotatable in a first rotational directions and a second propeller that is rotatable in a second rotational direction opposite the first direction. See Giver column 23, lines 39-54.

Regarding **claim 16**, Henry, as modified, teaches an aircraft wherein each propeller cluster includes a plurality of co-axial propellers and each drive unit includes at least one clutch mechanism. The clutch mechanism is operable for selectively coupling at least one of the co-axial propellers to a source of rotational power. See Givers column 24, lines 11-29.

In regards to **claim 17**, Henry, as modified, discloses an aircraft wherein each drive unit includes a plurality of engines that are combined into a single nacelle. See Givers column 24, lines 1-10.

Regarding **claim 18**, Henry, as modified, teaches an aircraft wherein each propeller cluster includes a plurality of co-axial propellers and each drive unit includes a gearbox, a plurality of engines and at least one clutch mechanism. The gearbox includes an input and an output portion. The input portion is configured to receive a rotational input from each of the engines and the output portion is configured to output a rotational output to each of the propellers. The clutch mechanism is operable for selectively coupling at least one of the engines to the input portion of the gearbox.

In regards to **claim 19**, Henry, as modified, teaches an aircraft wherein the clutch mechanism is operable in a first mode, wherein only a first one of the engines is coupled to the input portions, and a second mode, wherein only a second one of the engines is coupled to the input portion, and a third mode, wherein both of the engines are coupled to the input portion.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Henry in view of Spence.

In regards to **claim 23**, Henry teaches the claimed invention except for specifying a hinged nose portion. However, Spence teaches an aircraft wherein the fuselage includes a nose portion and a fuselage body, wherein the nose portion is hingedly coupled to the fuselage body. See Figures 1-3. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the fuselage of Henry, with the hinged nose structure, taught by Spence, in order to provide an additional way to load cargo onto the aircraft.

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Henry in view of Roessner et al.

In regards to **claim 24**, Henry teaches the claimed invention except for specifying a conveyor system. However, Roessner et al. teaches an aircraft comprising a transport system that is fixedly connected to the fuselage and includes a conveyor portion. The conveyor portion of the transport mechanism is configured to facilitate loading and unloading of cargo into the central storage and wing cavities. See Figure 1. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the fuselage of Henry, with a conveyor portion, taught by Roessner et al., in order to provide an efficient and effective way to load and unload cargo onto the aircraft.

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Citation of Relevant Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of art with respect to ground effect aircraft:

U.S. Design Pat. No. 139,634 to Walker
U.S. Pat. No. 2,557,962 to Greene
U.S. Pat. No. 3,726,493 to Muller
U.S. Pat. No. 3,774,864 to Hurkamp
U.S. Pat. No. 3,869,102 to Carroll
U.S. Pat. No. 4,159,086 to Schonfelder
U.S. Pat. No. 5,034,751 to Miller, Jr.
U.S. Pat. No. 5,335,742 to Blum
U.S. Pat. No. 5,427,329 to Renzelmann et al.
U.S. Pat. No. 5,636,702 to Kolacny
U.S. Pat. No. 5,893,535 to Hawley
U.S. Pat. No. 6,325,011 to Klem

PCT No. WO 99/54181 (Russia) to Nazarov et al.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan L Piascik whose telephone number is (703)305-0299. The examiner can normally be reached on M-F (8:00-5:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Poon can be reached on (703)308-2574. The fax phone numbers for the organization where this application or proceeding is assigned are (703)305-7687 for regular communications and (703)305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-7687.

slp
November 18, 2002


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